

Chemistry Librarianship - How Do You Measure Up?

Research Study Selective Quotes

April 2024

Kaelan Caspary
STEM and Data Librarian,
Ontario Tech University Library and Durham
College Library,
Ontario Tech University,
2000 Simcoe Street North
Oshawa, Ontario
L1G 0C5

April Colosimo
Liaison Librarian,
Schulich Library of Science and Engineering,
McLennan Library Building,
3459 McTavish Street, McGill University,
Montreal, Quebec
H3A 0C9

Madeline Gerbig
Chemistry Librarian,
D. Allen Chemistry Library,
Lash Miller Laboratories, Davenport Research
Wing
Rm 480, 80 St. George Street,
University of Toronto,
Toronto, Ontario
M5S 3H6

Ian D. Gordon
Teaching & Learning Librarian,
James A. Gibson Library,
Brock University, 1812 Sir Isaac Brock Way,
St. Catharines, Ontario
L2S 3A1

Selective survey and focus group quotes:

Avant d'être bibliothécaire en chimie, j'ai été pendant 5 ans bibliothécaire en sciences et génie dans une autre université. Même si ce n'était pas en chimie spécifiquement, beaucoup de questions et de consultations pouvaient porter sur des domaines en lien avec la chimie. Je donnais aussi beaucoup de formations documentaires aux étudiants des cycles supérieurs dans tous les domaines du génie, incluant le génie chimique. J'ai donc développé des connaissances en sciences et génie et je connais le langage scientifique apparenté à ce qui prévaut dans le domaine de la chimie. / Before becoming a chemistry librarian, I was a science and engineering librarian at another university for 5 years. Even if it was not specifically in chemistry, many of the questions and consultations could relate to areas related to chemistry. I also gave a lot of documentation training to graduate students in all fields of engineering, including chemical engineering. I have therefore developed knowledge in science and engineering, and I know the scientific language related to what prevails in the field of chemistry.

I studied general and organic chemistry as a student. During my master's degree I did some course work in toxicology. I have been doing chemistry information literacy for 15 years and have some great relationships with faculty here.

I have baseline first year chemistry knowledge. Otherwise, I have experience working with engineering students and health science students. I'm very new to support chemistry and support it among other disciplines, so to be honest, I haven't yet identified its unique needs, and what sets it apart from other STEM disciplines that I serve.

Prior to working as a chemistry librarian, I received training and professional experience working in health libraries. This helped me gain an understanding of issues in STEM librarianship, many of which I've found to be transferable

to different areas of the sciences. I consider myself well-versed in the specific needs and concerns of STEM researchers around topics like scholarly publishing, research data management, collections development, literature searching, etc. though I did have to do a lot of extra work to gain chemistry-specific knowledge when I first began my role. For example, I audited multiple introductory chemistry courses to develop base-level knowledge and vocabulary and spent a lot of time learning how chemical information is structured, especially in specialized databases like SciFinder and Reaxys, which were quite different than other STEM databases I'd encountered. The skills and knowledge I bring from my humanities background is valued in my department: I am often called upon to share my expertise in writing and communication with students and faculty. However, I do think many aspects of my role would be easier (specially building relationships and trust with faculty and students) if I had an academic background in chemistry, and I would feel more confident in my ability to provide teaching and research support.

While I don't feel terribly confident in my chem abilities, I've at least taken chemistry as an undergrad (4 courses) and multiple science labs. None of my colleagues have science degrees – all are BSs, Mas – all arts or social science related. Librarianship desperately needs more STEM professionals in the field. I regularly use chem resources like SciFinder Scholar, ACS, RSC so am comfortable helping researchers access these resources.

My undergraduate coursework and undergraduate research experience include a lot of physics and math which means that I feel comfortable in talking about some areas of chemistry research (e.g. physical chemistry) but less comfortable in others (e.g. organic chemistry). I have 5 years' experience supporting engineering, math, and computer science, and so I have a good understanding of some of the databases and resources related to these areas, but I do not have the same experience with the more specialized chemistry databases.

My science degree, although not in Chemistry, provides a level of familiarity/comfort with the subject that other librarians at my institution did not have. As with other liaison assignment, I have to become familiar with topics being taught and library resources that can support those topics and meet with faculty.

My university education was in chemistry and then I worked for a gov org as a science librarian for 15

I do not feel confident in this area, but Chemistry program at my institution is small and undergraduate only, so it is not a large part of my work.

I have been a librarian at the institution for over 20 years, so I know the resources we have quite well and can provide adequate support. We do not have in the way of specialized databases for Chemistry but what we have seems to provide enough support for the program.

My professional experience has provided some familiarity with the tools that are available for chemistry education and research, while my academic background (Canadian history) reinforces how little I know about the use and application of these tools.

No real chemistry background, I hesitate to become fully engaged in instruction and support as I don't really speak chemistry very well, and am trying to pick this up, but there are very few ways to get chemistry expertise without getting additional certification e.g. BSc, this just doesn't happen overnight. I suffer from the imposter syndrome from time to time and wonder whether faculty, staff and students hesitate to ask for assistance... but I do the best I can with what I know and experience.

Nous ne l'utilisons pas encore. Par contre, des discussions sont en cours dans des comités interuniversitaires pour étudier les opportunités et les risques liés à l'intelligence artificielle dans un contexte universitaire. Je m'attends à ce qu'il y ait des développements à cet effet au cours des prochaines années. / We don't use it yet. On the other hand, discussions are underway in inter-university committees to study the opportunities and risks linked to artificial intelligence in a university context. I expect there to be developments in this regard over the next few years.

I have yet to truly dive into AI but plan to very soon.

I use ChatGPT to compare discipline-specific terminology to help orient me to “lingo”. I rely on it to give me the big picture. I also go to ChatCPT to suggest synonyms for search strategies (this idea given to me by a PhD student I work with).

One thing I’ve tried using LLMs for is to brainstorm search examples for my instruction as well as generating sample lesson plans – since I do not have a chemistry background, I sometimes find it challenging and time-intensive to identify relevant examples that do a good job of illustrating different search strategies. I have had limited success with this so far, but will keep exploring. I am also increasingly being asked to speak about these tools as part of my instruction sessions.

I’m starting to talk about some of the research tools that use generative AI (e.g. scite, Elicit, etc.) in some of my classes, when appropriate. I am part of a team that is starting to offer workshops on these same tools as well.

AI is the next wave, I use it when pointing to students to gain this knowledge and use it myself to work through textual analysis and writing up briefs. I don’t think that AI will change what we do when instructing in the sciences as students still need to think critically on what they do, what they find and how best to evaluate whether their research question is being answered. There is so much more to academic research, but I see AI helping database searching, harvesting data and citations from a wider swath of sources to include languages that are not really known e.g. Asian, sources that are suspect e.g. regional and lesser known journals and to hear the voices of important communities e.g. Indigenous. The future looks bright as AI is the research resource du jour. I point to the opportunities and possibilities AI brings to research if only to widen the knowledge and curiosity of graduate students in instruction and meeting research goals.

[Institutional name] is a small place. I am stretched very thin, I’m not so much the Chemistry Librarian as the librarian the Chemistry Department should contact when they need help from the librarian. I just don’t have time to do any more than that.

One time I was showing a class ChemDraw and the prof was like ‘just draw hydrogen’ and I was like... yeah I don’t know how to do that! Hahaha, I literally only could draw what I came up with in my example, I’m no chemist!

I’ve been a STEM librarian for 30+ years. The main obstacle I have encountered in my career is not my lack of a formal STEM education, but the attitudes of many of the scientists and engineers I have worked with. Amongst STEM researchers there is a deep lack of understanding about librarians and librarianship, and their role in STEM education. Many STEM researchers hold the library in little regard. About 10 years ago, I introduced myself to a new chemistry professor who moved to my university after working for 20 years at other institutions. One of the first things he said to me was that when he was a grad student, he NEVER used the library. It was a brief conversation. In the first few years a chemistry librarian, when I attended department seminars, some of the older faculty would say things like, “Oh, I’m surprized to see you hear.” Of course, there are some STEM researchers who are big fans of the library. But as I get older, the number grows smaller. For many researchers today, the library is very distant, almost [an] invisible thing.

As someone who has worked in multiple areas of STEM librarianship without an academic background in STEM, I found it much more challenging to get up to speed with chemistry as a liaison area than I did with the health sciences. I absolutely think that it is possible to be a successful chemistry librarian without an academic background in chemistry, but it requires significant time, effort, and commitment to develop confidence and expertise in providing robust research and curriculum support.

I work in a small university. Everyday is an exercise in triage. My main job for the chemistry department is helping students get registered on SciFinder and keeping up to date on that. I update the LibGuide every do often. It’s the best I can do.

A great study, I think too many academic librarians fail to realize that subject expertise is everything when building trust, capacity and share research skills to new and experienced researchers. Without this knowledge librarians serving in STEM and chemistry research areas are too often sidelined or ignored at their peril.

I am very interested in seeing how chemistry librarians have specific training/academic backgrounds in chemistry. I would also like to see the variety of roles that chemistry librarians across the country have taken on.

I would be interested in the differences experienced between a dedicated chemistry librarian and a librarian who covers multiple subjects – likewise, supporting students at smaller institution versus a larger one.

I think it's interesting. I don't, I'm not in any of those situations. Like I'm not at a small institution, we have PhD programs, I'm not on a functional team. So, I feel like my comments are purely like academic. Like theoretical. I mean, I can see people who have, you know if you're in a smaller institution or you have like just potentially less practice or less demand to develop those skills that you wouldn't be as confident right? Like, if it's not your primary job, because you're, you know, your part of a team that's doing a bunch of other things. That all seems reasonable to me.

Yeah, I would echo the demand piece. So, the less I hear from folks, the more I feel like I should be investing elsewhere, just based on where I'm getting questions from, where I'm getting teaching requests. That kind of resonates for the physics piece of my portfolio, I get like one or two questions a year, versus chemistry or environmental sciences. So, I feel more of a need to put my energy into that. And even for like the smaller institutions piece, I'm just wondering about like support to gain proficiency and confidence in those areas. Like at [academic institution] we have a great network here where I work with other science liaisons, I connect with other chemistry librarians across our [campus]. That has been so instrumental in helping me grow in this area where I do not feel confident at all. So, I could see how maybe having that lack of support system at a smaller institution could potentially be a reason why that might come up as well. And can you reiterate the functional teams' piece?

Yeah, yeah. So, we kind of, sort of connected the different responses to see how that impacted people's confidence. And for functional teams, that sort of the type of people who were in, maybe they're a teaching, a STEM teaching librarian or just a teaching librarian and they have more of a functional role. We're seeing folks move, we're seeing some institutions moving sort of more towards this model, versus the more subject-specific like you're the liaison for X subject model. So, some folks who are in that model felt that they were less confident as a result because they might be covering lots of different subject areas and providing teaching support, for example, for all of those subject areas versus being able to focus on fewer subjects or, or one particular subject if they're very lucky. Yeah.

I do feel more pressure, being like a chemistry librarian without that subject expertise. So maybe it's a bit of the opposite, even though it's a bigger institution at [academic institution] and we do have that support, I do feel like I need to have that expertise. Even though like I've tried to give myself grace and say, at the end of the day, I'm there to teach them skills to implement with, you know, searching databases and understanding what tools are available. How to form keywords, that kind of thing. So I will defer to them as the experts whereas I'm just there to kind of guide them through the process, but I feel like having that expertise does get more buy-in and it helps me to loop into things that might help them more or like extend my capacity to help them so it's kind of a balancing act in the first year and a half that I've been doing this role, is giving myself time to gain that expertise, but also being like it's okay if you don't know everything. That's not necessarily what you're here to do.

No, I was just going to agree. I have a science background like I have a BSc in Earth and Ocean Science. But that was a long time ago. Right. And I haven't used it, and one thing that I tried to remember is that like, PhD students in chemistry in like organic chemistry, can't talk to PhD students in inorganic chemistry, and like understand each other. So, I think that's really, that sort of is a like, calming or like something I do to make myself feel better where

I'm like, I have expertise in how to find things. But like, I'm just never going to have their expertise in chemistry. And that's fine. Right? Like, you know, my yeah, my expertise is in, is in finding things and kind of figuring out these tools, even if, ultimately what I need to do is like, either have them with me or like bounce back results back and forth and back and forth, because I can't really interpret them. Like thinking about the, the two results where people felt more confident teaching than they did helping with research questions like that really resonated with me. I can teach people how to use SciFinder like how to use, whatever, right? But when they are like, I'm looking for this really detailed thing, like, that's, that's when the chemistry really hits. I don't, I don't understand. Yeah, but I'm really clear about that with students and faculty, right. I'm like, listen, this is where my knowledge ends and where your knowledge steps in. This is what makes us a team.

I can certainly understand why people from smaller institutions might be less confident because typically as smaller institutions you have to cover a broad range of programs. If you're doing chemistry, and I've seen STEM librarians covering humanities programs, if you have a broad range of things, you just won't have the time to kind of study and learn in the program or the research going on. And then those from functional teams. Yeah, again, because functional teams don't encourage, they actively discourage librarians from developing relationships with programs, right? You're not going to be encouraged to go and talk to chemistry faculty and grad students and go to the departmental seminars and things like that because you're on a functional team. So, I can certainly understand why those librarians would feel less confident.

You have to be comfortable with talking to researchers, post-docs, understanding the vocabulary. What fields they're working on. And again, that takes time to learn if you're not a chemist or don't have a chemistry background. You can pick up that vocabulary over time but you have to have enough time in your day to learn and to go to departmental seminars and lectures and things like that.

I agree with [name] in terms of the functional teams because, just like [Name University] changed from the liaison model to functional model, when we hire librarians we don't look at the backgrounds, like academic backgrounds. If we hire a teacher learning librarian, we just look at the pedagogy part that applicants already know. Even the role may be for chemistry, for STEM, but actually the candidate won't be examined in that part. So yeah, I understand for functional teams. Some librarians are less confident because then they enter the institution and they actually don't need the background, don't need the experience in chemistry. In terms of chemistry education and research support I think I understand why, because like research support you don't know how deep or how complex the question will be. But if you just teach students how to use SciFinder to find something, you can give your own examples. But when researchers come to approach us, they may have something specific. They already searched in some resources and they couldn't find it. This requires more knowledge and more search skills. I feel some librarians may be not confident with the research part. But the education part should be easier. Basically, from my experience at [Company Name] I found at academic institutions we try to teach researchers how to use resources, but in the special library we try to find the information and give it to them. So, we need more knowledge and experience in the field.

Yes, it does for me [being less confident providing chemistry education and research support]. I think [institutional name] is just on that border now. We're a little over 10,000 students so we are just making it into that medium size university. I still think of us as a smaller institution with PhD and Masters programs, but not specifically for chemistry. So, I would say yes, that I'm less confident and I don't do a lot of instruction in chemistry. You know, it's getting better. There were years when I did nothing at all. And in more recent years I've been working with fourth-year instructors, but the focus is typically on Web of Science and its literature. We're not doing anything beyond that although we have Reaxys and SciFinder-n and those resources. I can use them to find literature, but I would not be confident in approaching that literature thoroughly, let's say like structure searching and that sort of thing.

So I'm confident and nervous because I can follow [chemistry-related] conversations. I know what's happening. So, and that's been proven out over time and complexity and different settings, but I don't have a [chemistry-related] background. Every once in a while, something will come up that's super basic that nobody talks about because it's

super basic and I'll go "oh wait a minute" and I have to go and check. I'm ok if I do know [something] that's not burned in... That's the experience, the perception of my capacity and confidence around the literature and the [chemistry] lingo.

I would say the same. A bit of both and it might depend on what class I'm working in or who I'm working with. I've learned over the years to try to be as transparent as I can when I'm working with faculty, and that's helped because initially when I didn't know. I didn't want to let them know that I didn't know. You know? So over time I've developed more confidence and say, "Ok, I don't know anything about this topic. You're going to have to help me. You know what? Umm, what topics can I cover? Give me some suggestions. What's that about?" And so that's helped me a lot.

I guess I'm not the best person to answer this question. I've never not felt confident doing chemistry information literacy instruction. The harder and weirder it is the more fun. It is for me. I love looking at someone's reaction and going "Wow, that's awful. you're probably going to catch on fire. That's really toxic. So glad I'm not doing this anymore"

The department didn't really connect me with the library. They just saw me as someone with value who was super interested in what they were doing and could add value. So, then they asked me to come to their graduate research day because they wanted the person from the seminar to come and ask questions of all the grad students. So, they still never connected me to the library until I spent six hours with them. And everything I said was "hey, it's [name] from the library. Here's my question." and so I think if you have a long lack of relationship between the library and the chemistry Department. Then you have to figure out a way to add value because if you don't add value, you're probably not coming in to do any of this kind of instruction.

I've been a librarian in a lot of STEM subjects and I can do it. But I always thought chemistry would be really challenging because it's its own vocabulary, right if you can't structure search or do a retro synthetic analysis, I don't know, I answer those types of questions. I don't know if you don't have a background, do you just not hear those questions? Do you refer them to somebody else? I don't know man.

I guess I could speak to just my experience being in that first year and a half role and how confidence has changed. So, when I first started as a chemistry librarian, I had about a month and a half to onboard just in terms of knowing the resources as well as trying to get just the most baseline of lingo available. And the only reason I felt I was able to do that was because I had previous liaisons' materials to build upon and the [academic institution] colleagues to call upon to be like, does this example makes sense? Like, what's a compound, what should I be searching in SciFinder? Just like these basic ideas that I had no idea how to do. But once I started to understand the tools and what examples made sense within them, then I felt a lot more comfortable navigating those resources myself and being able to demonstrate them. And the more I taught with students and interacted with them, the more I was able to feel like okay, this is going okay. And I can iterate and I get feedback and I see what works and what doesn't each semester that I teach this so I'm able to kind of build upon what I have. And I'm also really an advocate of getting like reflective feedback and integrating that not only for future courses but into additional teaching beyond that live session. So, I have like workshop FAQ pages I built on my LibGuides, for example. That helps me to kind of continue to interact with students beyond the session to answer their questions. So that gives me a sense of like, what is it that they feel they've learned really well? What areas are they still feeling maybe less confident in? And that helps give me direction as a liaison and be like, okay, here's what I can focus on, and prepare for ahead of time next time. So, if I feel like I have gaps in those areas, I can build upon them before I teach the next iteration. So, I feel like it's, I don't know this is, I guess that speaks to the experience piece and knowledge, expertise I don't feel like I can talk to all that much yet, because I'm still developing it, but it's like anything. It's, you don't have to get it perfect the first round. Don't expect perfection of ourselves or our students and kind of grow together, has been my approach thus far. Might have more to say I'm going to pause and think a little and pass it on if there's other thoughts.

And I'm kind of at the other end, like where I've been doing this for a long time, but I've also just realized that like, that just goes on forever. Right? Like, there's no end and there's no point where you're like, yep, I know, my expertise is solid, like, there is, we always discover something new or some interface changes wildly. And you realize that you, everything you knew was kind of based on like this one little structure that you built in your mind, and then, it's kind of knocked out from under you. And so, I think for me, you know, my confidence in providing instruction and support is probably true for any liaison in any discipline, right? Where you just, you come to accept that like things are going to change and you have to roll with it. And so, you gain more confidence in, in not knowing everything. Like I felt like when I was new, I was like, okay, I have to learn all these tools and I have to like know them inside out and backwards before I can teach them or before I can, you know, help people use them and yeah the more experience I have, the more I realize that like I'm never going to know them all inside out and backwards. And I just have to be okay with that, right? You kind of have the confidence to go anyway, right? And be like okay, like, we're going to learn this together today. And be like oh, this changed since I last did this you know, like, let's figure it out. And I think that actually resonates better with students anyway, that, you know, they don't want to sit there and listen to someone pontificate about everything they know. They want to see that people struggle. You know? But that we can adapt.

Like, having confidence to be able to let go of that control. Just like life comes at us sometimes and we have to adapt on the fly. And that's a good skill to learn.

Yeah. You know, and that we're all learning this and that there's no like expert. I find that science students, well probably students in general, my experience is with science students, have like a feeling that there's an answer, right? And there's the way of doing things. If they if they're not doing it right, then they're doing it wrong, right? If they're not getting the, what they consider to be the perfect results then they've done something wrong. And so, like I find modeling sort of that flexibility helpful for –

When I just became an academic librarian, at that time I focused on feeding students the knowledge points or something, how to search in the database, etc. I did have hands-on activities for them but later I felt my strategy was not good. Because over time I learned a lot in the academic institution and also through professional development I think I have developed more experience and expertise in how to teach, how to effectively teach students using the resources. Yeah, in terms of pedagogy.

I would say, and this applies to any type of librarian, you're never going to develop confidence if you're not in love with the subject you're serving. So, if you don't care about chemistry, if you hate chemistry, if you had a terrible high school chemistry course and it scarred you for life, that's going to be really hard to overcome. So, you really have to be prepared. You might be a little scared to take on a chemistry role if you don't have a background. But if you're curious about science, if you're curious about technology, and you're enthusiastic about learning then you can overcome that imposter syndrome. But if you just don't have any interest in the subject then, yeah, it's going to be really hard. I mean, I would be a terrible agricultural librarian because I do not care about agriculture. I like to garden, I have my little vegetable garden, but that's the extent of my interest.

Well, I think as I mentioned just that confidence to say I don't know and that helps with the learning, umm, we are not a functional model here. I'm a subject librarian, you know. That's, but we all have functions, so I kind of think we're both, but I think you know working with those like groups like the chemistry library and group, you know that's definitely helped me a little bit. You know, just having going to some of those sessions and that sort of thing, that's changed things for me over time because you don't feel quite as alone.

I would agree that being the sort of community of practice for using that term, it makes sense.

Makes a ready crowd to ask a question and a relatively safe crowd, but it's also, but that's not a thing I've availed myself of, but I take comfort in the fact that it's there and I can do it. I feel like I could do it. I mean, uh, I've only been a librarian for 10 years. This is not my first career. My career before this was I was an administrator and dealt with healthcare complaints. And then pharmaceutical policy analyst analysis, whatever. So, I had it for me. It's

asked backwards. I had all the experience and then I came and they said, hey, chemistry and I'm like, I don't have a chemistry background and then it turned out I kind of did. I had enough of a background to translate chemistry into librarian speak and back and forth. This is all I needed because I needed to be the translator because the students need what the students need and library and speak whatever librarians speak. And if I had enough of each, which I seems like I have had, mostly not always, so that's worked [as well]. With that experience, you can get on the job training. Like, once you're supporting chemistry library and chemistry students and faculty for a while, you begin to know your own programs and know you've got a fair bit of context before questioning even hits you because of who's asking it where and under what setting. That helps my confidence if I sort of [know] a lot of that context already. I'll feel more confident in my answer, but I also feel more confident getting chased. A [research] question which can sometimes be intimidating, maybe fuller semantics than you're looking for.

That's interesting. I mean I would say even at the beginning when I first started I definitely had a lack of confidence. I mean, it was also right out of Library school and I mean to me like I did undergrad, then Library school and started working at the [academic institution]. And I would say the huge feeling of imposter syndrome like, attending those seminars, the first years there and the grad students were my age and I don't know you feel totally out of the loop, So, not having the chemistry background really, I think makes you feel. I guess reducing amount of confidence that I had in my ability to be able to provide instructions support, but I will say over time as I started to learn more about what the researchers and students were really doing in the department and what their needs were with respect to reference, information literacy, later on learning about the publishing system and Open Access and Research metrics, ORCID profiles and starting to see areas that the library operates in that there was also that same need in the Departments that kind of gave me confidence because I found out This is an area that I kind of have expertise right coming from the libraries and this is something that there's a true need so after doing a bit outreach I can kind of see that if I lean more into those areas for support that is an area that I can speak with some authority and some expertise and that gave me the confidence to be able to do that Outreach and deliver those services.

So, for me at least there is a change over time. I think naturally but also the confidence changed as I went kind of leading more into those areas that I felt I had more expertise in areas that were valuable. So, I guess to maybe this is taking a different path. Right, I'm not leaning into my ability to provide expert chemistry reference to the department. I don't think that has ever been the case at [academic institution]; my predecessors didn't have a chemistry background. So, I don't think we ever really went down that path of providing kind of very in-depth consultation for chemistry reference. But we are comfortable. But I am comfortable enough now to be able to do, some fundamental or basic reference to offer undergraduate level information literacy support with SciFinder and then again more into those more subject agnostic research supports that again those are areas that our researchers definitely value a lot. They look to us for that expertise and for that guidance around Open Access publishing and research metrics and profiles and that's something that I think also to them that has a direct high-end to the research and a way that we can help them. So my confidence has definitely increased over time, but I also find that for me, I don't get those requests really for consultations that are more nuanced and complicated for chemistry, but I'm also not kind of worrying about trying to get those which perhaps might be, not if that's not the greatest thing, but the need hasn't really been made for us and I would say we do have a relatively good relationship with the library, with the chemistry department now. We've always had a faculty member who has been tasked with being the Faculty bibliographer who's essentially their contact, their liaison, to the library and he's very active and suggesting things for the collection, but also kind of highlighting the needs that we have. And I think the relationship is pretty good. I think we're meeting their needs relatively well, but again, it's very much focused more and I would say the publishing side. Because we have that, because that's an area I definitely know a lot more about, have expertise have more confident in that and that's grown over the years.

I think when I started I taught a lot of the traditional tools for that time period like Bornstein, Beilstein, Gmelin. SciFinder or whatever it was called before. Chemical Abstracts. So, I taught those traditional tools. And because I worked in Labs. I worked either after school after classes or during the summer, I always worked in a lab. So, I had

used those tools for my own research and lab work. So, I was confident coming in and continuing that kind of use in my instruction.

So, I guess it's called Reaxys now but Beilstein, Gmelin used to have this amazing course that you could take and so I took that course and it was phenomenal and it lasted a year and you had to send in assignments and stuff and you got feedback.

I noticed now that not a lot of Institutions still have Reaxys or a lot less institutions do. I'm not sure whether SciFinder has filled that gap or some other tool but that is definitely like, I noticed kind of a shift away from needing that kind of skill. Let's see. I did have a question from the chemistry department at [academic institution] that I didn't know the answer to. They wanted to know, so if we're moving towards an Open Access model, then we should be making data accessible in an Open Access Repository. So, the question is for every type of instrument, you have a different data format. What are the Open Access Data formats? And how do you get them there?

Yeah, I agree with all that. I don't have another, I'm the only chemistry librarian at [academic institution]. There's only two or three, depending on how you count it, science librarians. So, we don't we don't have like, I don't have a lot of colleagues to draw from, but I do, [place name] does have like a science librarians' group that meets up and has a listserv, and so often I connect with my colleagues at [institution name] and other institutions. As well as like the number of times that emailed that like chem librarians like CHMINF-L, like just the most absurd questions. Someone's asked me this and I don't know where to start. And they're like, whoever's asking you is not being helpful, like –

Well, you can always find a hook. My background is in history, my 1st degree is in history so I kind of approached chemistry from a historical point of view. So, in the first couple of years I was the chemistry librarian I read as much as I could about chemistry, the history of chemistry, biographies about chemists, how the discipline developed, things like that. And if you can find a way to kind of connect with the subject, either through your personal interests or your other backgrounds that helps. I started as a librarian in [date], and today [name] was mentioning there are so many wonderful resources out there, from CAS and vendors and on YouTube. Hours and hours and hours of tutorials that other librarians and other chemists and vendors have produced. It's very different from the nineties when there wasn't very much stuff like that unless you went to a conference and took a workshop or went to a training session offered by a vendor. I think today, young librarians today, really have lots of ways to learn that we didn't have 30 years ago.

It was just part of my job to know. Not exactly what somebody's talking about or how to do what they're talking to me about, but to know what they're talking about and that was a challenge at first. But I realized I knew more than I thought I did. I had to read that much to know and gain that confidence.

Am I nodding my head enough? Definitely resonates for me, so one of the reasons I came into this chemistry liaison role is because our previous liaison covering that kind of [STEM department] portfolio was switched to a functional role to support research and scholarly communication on campus. So, we actually lost an entire science liaison portfolio and that came on me and was not like distributed. So, I kind of had to absorb all of that on top of already being run thin. And we have, I would say two, two and a half other science liaisons on our campus who are all run ragged at this point. So, I think we're all just tired and overworked and trying to prioritize where we see high impact and what we can be thinking about maybe is continuing just to not burn out constantly. So, I think this is, it seems to be resonating with a lot of folks and the other challenge at our campuses is you know, even in cases where we're not able to find coverage between the three or four of us, there's just lack of science lingo and familiarity with science library resources across our liaison programs. So, trying to find coverage sometimes is really hard and we have to say no to things that would be really nice not to say no to and just trying to make the case for why we need more science librarians has been really challenging. So, I think this stuff it resonates

especially like on the teaching piece and the research consultation piece. Just looking through the question if there's anything else I wanted to speak to. Yeah, I think that's the gist. I'll pause there.

I think it's something we've always struggled with, but we struggle with it in different ways. Like it used to be we were spread thin because we spent like 10 hours a week on the reference desk and we tried to balance everything else. Right? And I think now we're taking on more like big, thoughtful projects that are maybe more mentally demanding. You know, like, we used to be quite happy like dropping in to do, well not we were never happy, it never felt great, but to do one shot classes, right? And that's way easier than being, than thinking like, critically about curriculum integration. Yeah, so I think that the things we're doing now, are more, more mentally and probably emotionally demanding. You know, like the growth of systematic reviews, which is something I don't interact with, but like my health science colleague sure does, you know, like, that's intense, right, in a way that just was not a thing. really, like 10 years ago, right? They existed, but librarian involvement was nominal, right?

I think I would agree. I think a lot of us are spread too thin. I'm not a learning liaison librarian for all sciences, so that's just the way it is. There are four of us, so there aren't many of us and then we also have our own professional duties. We have university committees we sit on because librarians are required to sit on some committees, and there's only a few of us. You end up like the rotation that isn't fast.

So things like the university's personnel committee, you know that's takes up a lot of time. If you're on that committee and then there's our internal committees. So yeah, I completely can relate to being to being stretched, you know we're stretched thin. I feel [that] it's just something that you just learn to live with. It's just the way it's been. I think it seems like that's the way it's [always] been, at least where I am. I kind of feel like I learned a little bit of [providing instruction and research support] this for now, and then I put that away stored away until I need it again, and it's hard to become an expert at everything. I've learned to be like that... in some areas.

I say yes, but let me explain a little bit and I won't go into too much detail, but I'm sort of freely negotiating my relationship with my career and my institution 10 years in as people often do. Umm, because I was all about achievement and threshold crossing... that is less important to me now or I'm not getting the return on that effort that I would like to see, and maybe I'll put my efforts somewhere else. I don't know what any of that is, but I have always felt like I've been spread too thin and I think that is it's difficult for me to say [that is may be] more self inflicted than I thought in retrospect. So, I could have allocated my time differently. There is a little bit of invisible labor there. There's a little bit of vocational awe. There're a few other things going on, right? I'm a deeply curious person. So, you know, rabbit holes are fun. So, all of that is to say that yes, "I'm spread myself too thin." Probably more so than I needed to, and I am clawing back some of those assumptions and reassessing what it is [that I do]. That is curiosity. What it is that is nothing to do with either one should stay inside the building when I walk out the front door. I don't have any answers, but it's [interesting]. That's all I can say about that.

It's been a slow reluctant process for me I would say. I haven't used it a lot in terms of just like my preparation for going into courses, but when I'm teaching workshops, I do try to approach it from just like a critical perspective when it comes to information literacy and like the number one thing is you know, there's so many sources that we can use in the sciences. What I want to emphasize is, what they are, what their functions are, when and why you should use them. So, when I talk about things like Chat GPT, I'll try to emphasize like this is a language processing tool. It is not literature searching tool, and here's some of the limitations that will come if you try to use it as a literature searching tool. So, I will flag some of the problems like hallucinations, that I ultimately can't control what you do, but there are other tools that I think will work better for your purposes and here's why and then I will go into my demonstrations. So, I do have a like ChatGPT and generative AI page that I put into my LibGuides. I don't spend a lot of time in class beyond just kind of that quick like here's some things to think about just because there's other stuff I need to get to in that hour. But if stuff comes up in databases, as I'm using them, I will try to point that out. So, I think it's Web of Science has like generated keyword suggestions based on ones you've searched already. To be like, here's why we're seeing this and here's some ways you might use that. But that's probably about the extent that I've done it. I have had faculty ask about doing little blurbs for its use as like a

brainstorming tool for writing papers. But I'm very strongly against it as a lit searching tool at this point. So, I'm pretty firm on that when I go into teach classes and just trying to be transparent with students as to why I come from that standpoint and like some of the ethical issues that I still see in place and how this is so rapidly changing. So, I'm trying to stay afloat and address what I think is helpful just for them to be aware of, but it's, until some of that stuff gets resolved, I'm a little reluctant to like lean in too far to teaching like ChatGPT in particular, those kinds of things. But for the database tools, I agree. It's part of the platforms we're using. So, you might as well talk about what they are and why they're there and how they can be used responsibly.

And I want to say that I'm not using the open model of Chat GPT. I'm doing an API call that sort of thing and we're using representative data not their actual data, which you have to be worried that it is going to train the model. I taught students how to create their own representative data that's not related to their actual research data, but can be used to ask the questions that they have. And so, for that you need to be able to call the API model that sort of thing. So, I use it quite a bit. I created a prompt design course for [academic institution] before I left. I don't know. I think it's really powerful, specifically how I want to use it and using generative AI in data cleaning is definitely changing the data science profession for sure. The bulk of what we do in science is data cleaning and data processing and if we can offload that or make that faster, especially for creating regular expressions, then that gives us more time to be asking higher level questions of data and making higher level connections.

Yeah, I mean I would say I incorporate AI in my professional practice. I'm not sure how much I do it for chemistry specifically or my work with the Chemistry Department. I use Chat GPT, for example a lot, almost daily, and I use it to explore topics...Let me open up chat GPT to see what I've recently asked it...so I was working on a policy for our electronic resources, like helping guidelines for General acceptable uses for electronic resources. So, we don't have one right now. So, I drafted something on my own and I threw it in there and I started asking questions that helped me revise to come up with a final, good sounding one. So, I use a lot of copy editing I guess. I paid for the pro version of Grammarly to also do the same, so that has a built-in AI function to help you analyze what you're writing and suggest changes. So, I use it, I guess to help me with writing a lot and I use it to explore issues. So, I guess issues related to librarianship, issues related to just working. I also asked recently about the different forms of conflict management resolution, so in a way I guess I would have used Google in the past, I'm using ChatGPT.

I have also done a workshop on kind of instruction AI and literature searching. So again, not chemistry specific, but I did that to kind of force myself to learn about these eight new AI tools. They're coming out like these research assistants, like Elicit and Site and to see how those compare against traditional indexes. So, I ran a workshop on that and how to use it, ethically and critically but I wouldn't say, it hasn't really transcended yet to my work with the chemistry Department. I like the example of using AI to generate example questions, reference questions or search questions, you might use. So yeah so far, it's been limited to my other work that I do and more just I guess working in general, right?

[Institutional name] is a small place. I am stretched very thin, I'm not so much the Chemistry Librarian as the librarian the Chemistry Department should contact when they need help from the librarian. I just don't have time to do any more than that.

I've been a STEM librarian for 30+ years. The main obstacle I have encountered in my career is not my lack of a formal STEM education, but the attitudes of many of the scientists and engineers I have worked with. Among STEM researchers there is a deep lack of understanding about librarians and librarianship, and their role in STEM education. Many STEM researchers hold the library in little regard. About 10 years ago, I introduced myself to a new chemistry professor who moved to my university after working for 20 years at other institutions. One of the first things he said to me was that when he was a grad student, he NEVER used the library. It was a brief conversation. In the first few years a chemistry librarian, when I attended department seminars, some of the older faculty would say things like, "Oh, I'm surprised to see you hear." Of course, there are some STEM researchers who are big fans of the library. But as I get older, the number grows smaller. For many researchers today, the library is very distant, almost [an] invisible thing.

As someone who has worked in multiple areas of STEM librarianship without an academic background in STEM, I found it much more challenging to get up to speed with chemistry as a liaison area than I did with the health sciences. I absolutely think that it is possible to be a successful chemistry librarian without an academic background in chemistry, but it requires significant time, effort, and commitment to develop confidence and expertise in providing robust research and curriculum support.

One thing I've tried using LLMs for is to brainstorm search examples for my instruction as well as generating sample lesson plans - since I do not have a chemistry background, I sometimes find it challenging and time-intensive to identify relevant examples that do a good job of illustrating different search strategies. I have had limited success with this so far, but will keep exploring.

I use ChatGPT to compare discipline-specific terminology to help orient me to "lingo". I rely on it to give me the big picture. I also go to ChatGPT to suggest synonyms for search strategies (this idea given to me by a PhD student I worked with)

I point to the opportunities and possibilities AI brings to research if only to widen the knowledge and curiosity of graduate students in instruction and meeting research goals.

Understanding how AI works, when it doesn't and when it relies on bad or incorrect science and chemistry is probably the most important perspective librarians need to consider

AI is embedded in many websites and databases. It's impossible to avoid.

[Institutional name] is a small place. I am stretched very thin, I'm not so much the Chemistry Librarian as the librarian the Chemistry Department should contact when they need help from the librarian. I just don't have time to do any more than that.

I suffer from the imposter syndrome from time to time and wonder whether faculty, staff and students hesitate to ask for assistance... but I do the best I can with what I know and experience... so I've never felt very confident in chemistry.

In some areas my research experience helps me more than my training as a librarian. I am familiar with different databases and general search strategies used for locating chemistry research but not at an advanced level.

Generally being comfortable with science made it easy to support chemistry. It is not hard to learn the things I need to know.

I absolutely think that it is possible to be a successful chemistry librarian without an academic background in chemistry, but it requires significant time, effort, and commitment to develop confidence and expertise in providing robust research and curriculum support.